

MULTIMEDIA



UNIVERSITY

STUDENT ID NO

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MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019 / 2020 SESSION

DPD 5211 – PROGRAM DESIGN

(DIT Only)

2 MARCH 2020
9:00 a.m. – 11:00am
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This question paper consists of 7 pages.
2. There are **FOUR (4)** questions. Each question carries 10 marks.
3. Answer ALL questions.
4. Please write your answers in the **Answer Booklet** provided.

STRUCTURED QUESTIONS.

Instruction: Write your answer in the Answer Booklet provided.

QUESTION 1 [10 MARKS]

- a) Based on the description given below, prepare a flowchart to determine the classification of honours to be awarded upon graduating from Multimedia University. [2.5 Marks]

- Initialize all the required variables.
- Get the *total points* and *total hours* from the user.
- Calculate the *CGPA* (formula: $CGPA = \text{total points} / \text{total hours}$).
- Determine the *classification of honours* based on the requirement shown in Table 1.

Table 1: Classification of honours based on CGPA

CGPA	Classification of Honours
3.67 to 4.00	First
3.33 to 3.66	Second Upper
2.67 to 3.32	Second Lower
2.00 to 2.66	Third

- Display the *CGPA* and *classification of honours*.
- b) Based on the description given in (a), write the pseudocode. [2.5 Marks]
- c) Write a program based on the questions in (a) and (b). You may refer to the sample output as shown below. [5 Marks]

SAMPLE OUTPUT
Enter total points: 400 Enter total hours: 120 CGPA : 3.33 Honours : Second Upper

[TOTAL 10 MARKS]

Continued...

QUESTION 2 [10 MARKS]

A direct selling company is selling cosmetic product of price RM30.00 per item. They would like to calculate the total item sold and commission from 3 employees for the first quarter (Q1) of 2019 (Jan – Mar 2019). Item sold for 3 months is as per Table 2:

Table 2: Item sold in Q1 2019

Employee	Item Sold Each Month		
	January	February	March
1	80	80	70
2	10	20	10
3	20	50	10

Based on the descriptions below, write a program that will display each employee's total item sold and commission amount.

- a) Set the price per item as a constant using pre-processor directive. [0.5 Mark]
- b) Declare a function prototype for the function. [1 Mark]
- c) In *main()*:
 - Create a *two-dimensional array* with the appropriate size and initialise the values based on the data presented in Table 2.
 - Call function *getReport(...)* and pass in the array. [1.5 Marks]
- d) In *getReport (...)*:
 - Using a nested loop:
 - Calculate the total item sold by the employee. Then, identify the commission rate based on the total item sold. Refer to Table 3.

Table 3: Commission rate based on total item sold

Total Item Sold	Commission Rate
More than 100 items	15%
Between 50 – 100 items	10%
Less than 50 items	5%

- Based on the commission rate, calculate the commission amount.
- Then, display the total item sold and commission amount received. [7 Marks]

Continued...

You may refer to the following output:

SAMPLE OUTPUT	
Employee Report	
=====	
Employee 1	: 230 items
Commission	: RM 1035.00
Employee 2	: 40 items
Commission	: RM 60.00
Employee 3	: 80 items
Commission	: RM 240.00

[TOTAL 10 MARKS]

QUESTION 3 [10 MARKS]

Table 4 shows the price of Premier League jersey.

Table 4: Premier League jersey and price

Jersey Code	Sports Team Name	Jersey price (RM)
C	Chelsea F.C.	299.00
A	Arsenal F.C.	300.00
M	Manchester United F.C.	280.00
L	Liverpool F.C.	99.00

Write a program based on the following descriptions.

- Create a structure called *PLJersey*. Declare the following variables:
 - Jersey code: *jersey_code* (*char*)
 - Quantity of jersey: *qty* (*int*)
 - Jersey selling price: *sell_price* (*float*)
 - Subtotal charges of the jerseys price: *subtotal_charge* (*float*)

[2.5 Marks]
- Create an array of structure variable called *myJersey* with size of 4, which represents for four users.
 - Declare other necessary variables.

[1.5 Marks]

Continued...

c) Using *for loop* statement:

- Get user's input for the jersey code and quantity of jersey.
- Use *switch case* statement to determine the *sell_price* based on the *jersey code* (Refer to Table 4).
- Calculate the subtotal charge amount of jersey purchased for each user.
- Calculate the total payment of the purchased jerseys by all users.
- Display the subtotal charge amount.

[5.5 Marks]

d) Display the total payment.

[0.5 Mark]

You may refer to the sample output.

SAMPLE OUTPUT
Buyer 1: Enter jersey code: L Enter quantity of jersey: 4 Subtotal charge to be paid : RM 396.00
Buyer 2: Enter jersey code: A Enter quantity of jersey: 2 Subtotal charge to be paid : RM 600.00
Buyer 3: Enter jersey code: C Enter quantity of jersey: 3 Subtotal charge to be paid : RM 897.00
Buyer 4: Enter jersey code: M Enter quantity of jersey: 5 Subtotal charge to be paid : RM 1400.00
Total payment to be made : RM 3293.00

[TOTAL 10 MARKS]

Continued...

QUESTION 4 [10 MARKS]

Program Q4 demonstrates a program that stores currency conversion amount into a text file. **Complete the program** based on the instructions below. You don't have to re-write the code that have been provided in *Program Q4*.

The instructions are as follows:

- In *main ()*:
 - A. Declare two file pointer. [1 Mark]
 - B. Open a text file called *currency_convert.txt* for writing. [1 Mark]
 - Ask the user to enter the currency to convert to and amount to convert in MYR.
 - Using a selection control structure, identify the rate of each currency. Refer to the table below:

Table 5: Foreign currency and their exchange rate

CURRENCY	RATE
USD	0.2400
YEN	26.0794
SAR	0.9026

- Calculate the amount after conversion.
- C. Write the MYR amount, currency, and amount after conversion into *currency_convert.txt*. Refer to Figure 1. [1 Mark]
 - Repeat the process as long as user wish to convert again.
- D. Close the file. [1 Mark]
- E. Open a text file called *currency_convert.txt* for reading. [1 Mark]
- F. Check if file pointer returns a NULL pointer, then display "File could not be opened!" and exit the program normally. If file successfully open, then use a loop to read all the data from the file and print the details as per sample output. [4 Marks]
- G. Close the file. [1 Mark]

A sample content of *currency_convert.txt* after execution

<Amount in MYR> <Currency> <Amount after conversion>

350.00 USD 84.00
1500.00 SAR 1353.90
4851.00 YEN 126511.16

Figure 1: currency_convert.txt after execution

Continued...

Program Q4

```
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
void main() {
    ..... (A) .....

    char currency[5], cont;
    float rate, amountMYR, amountConvert;

    ..... (B) .....

    printf("----- CURRENCY CODE -----");
    printf("\nUSD - US Dollar ");
    printf("\nYEN - Japanese Yen");
    printf("\nSAR - Saudi Arabian Riyal");
    printf("\n-----\n");
    do
    {
        fflush(stdin);
        printf("Enter currency: ");
        gets(currency);
        printf("Enter amount in MYR: ");
        scanf("%f", &amountMYR);

        if(strcmp(currency, "USD")==0)
            rate = 0.24;
        else if(strcmp(currency, "YEN")==0)
            rate = 26.0794;
        else if(strcmp(currency, "SAR")==0)
            rate = 0.9026;

        amountConvert = amountMYR * rate;

        ..... (C) .....

        fflush(stdin);
        printf("\nConvert again?: ");
        scanf("%c", &cont);
    }while(cont=='Y');

    ..... (D) .....

    ..... (E) .....

    ..... (F) .....

    ..... (G) .....

}
```

Continued...

You may refer to the sample output.

SAMPLE OUTPUT
----- CURRENCY CODE ----- USD - US Dollar YEN - Japanese Yen SAR - Saudi Arabian Riyal ----- Enter currency: USD Enter amount in MYR: 350 Convert again?: Y Enter currency: SAR Enter amount in MYR: 1500 Convert again?: Y Enter currency: YEN Enter amount in MYR: 4851 Convert again?: N Convert MYR 350.00 to USD = 84.00 USD Convert MYR 1500.00 to SAR = 1353.90 SAR Convert MYR 4851.00 to YEN = 126511.16 YEN

[TOTAL 10 MARKS]

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